DOCUMENT RESUME

ED 455 082 RC 023 097

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TITLE The Success of the "E-Rate" in Rural America. The Main Street Economist: Commentary on the Rural Economy.
INSTITUTION Federal Reserve Bank of Kansas City, MO. Center for the Study of Rural America.
PUB DATE 2001-02-00
NOTE 5p.
AVAILABLE FROM For full text: http://www.kc.frb.org/RuralCenter/mainstreet/MainStMain.htm.
PUB TYPE Reports - Evaluative (142)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Elementary Secondary Education; *Financial Support; Geographic Isolation; Internet; Program Evaluation; *Public Libraries; Rural Areas; *Rural Schools; Rural Urban Differences; *Telecommunications
IDENTIFIERS *Access to Technology; *E Rate (Internet); Telecommunications Infrastructure

ABSTRACT

A key component of the Telecommunications Act of 1996 was the "E-rate," a program designed primarily to help fund telecommunication improvements at rural schools, libraries, and health care facilities. The program offers discounts that can be applied to telecommunication services, Internet access, and internal connections. An evaluation of the first two funding cycles of the program used data from 15 representative states. Findings indicate that general awareness of the program is quite high, but some differences across states indicate that some school districts may have been more aggressive in pursuing funds than districts in other states. Although rural areas are the key target of the funding programs, per capita funding in rural regions of six states was below the per capita funding level for the entire state. These results raise questions about whether all of the E-rate's rural goals are being met. Rural areas are in danger of being passed over when advanced telecommunication services are deployed, and many rural areas need help in making these services affordable. But the funding levels in many states in the sample could have been much higher. Funding levels appear to be a direct result of efforts on the part of rural stakeholders themselves. Therefore, individual schools, libraries, and school districts in rural areas seeking to increase their funding levels have the power to do so. Despite mixed results, the E-rate is considered a success for rural America. (TD)

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CENTER FOR THE STUDY OF RURAL AMERICA
Federal Reserve Bank of Kansas City

February 2001

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ED 455 082

The Main Street Economist

RC 023097

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The Success of the "E-Rate" in Rural America

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Five years ago Congress passed the Telecommunications Act of 1996, a historic piece of legislation designed to deregulate the telecom industry and promote competition in a market that had operated as a monopoly in the past. A key component of the act was a new federal funding program designed primarily to help fund telecommunication improvements at rural schools, libraries, and healthcare facilities. This program, known as the "E-rate," created a way to deliver millions of dollars in discounts on advanced telecom services to rural education and healthcare institutions.

In this issue of the *Main Street Economist* we offer a close look at exactly where funding dollars for education have flowed.[1] Are the most remote areas of states getting funding? Are the funds distributed evenly across rural areas from state

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to state? And are the funds distributed evenly between rural and nonrural areas?

In general, we find mixed results. Some of the most rural and isolated counties in the country have indeed received significant assistance. At the same time, more might be done to help other rural communities get the federal funding and advanced educational services they need to remain viable in today's new economy.

The role of telecom in rural America

People who live in rural America frequently raise concerns about two quality-of-life issues: access to first-rate healthcare and quality education. Remoteness, distance, and low population density have often caused the standard of education and healthcare available in rural areas to fall short of the standard in urban areas. And rural areas have been slow to gain access to new technological developments in these services.

Today, as many rural areas face challenges such as outmigration and an aging population base, many policymakers fear that the quality of these important social services will deteriorate even further. This fear is not unfounded. Services such as education and healthcare, although generally considered necessities, require a certain critical mass to operate efficiently and to justify spending on equipment and labor.

Recent advances in telecommunications can help address these rural concerns and help mitigate the negative effects of shifting demographics on rural education. At a time when the aging rural population translates to a steadily shrinking number of school-aged residents, telecom advances can be critical in helping to stem the tide of rural population outflows.

In particular, advanced telecom services can help rural places attract and retain new residents who might otherwise dismiss smaller communities due to concerns about adequate learning resources. Services such as distance learning can offer resources and opportunities that were impossible to deliver only a few years ago. High-speed networks can link school districts and towns to help create the critical mass needed to justify the costs of instruction and informational content, helping to spread costs across county or even state lines.

These high-speed networks can help give rural students access to the same technologies as their urban counterparts, enabling them to develop the skills they need to be competitive and marketable in an information economy. For instance, the Mountain Plains Distance Learning Partnership is an enterprise that unites communities in Utah, Wyoming, Colorado, and Montana. The partnership is designed to deliver interactive multimedia curricula to an entire network of remote communities in these four states.

Table 1

Funding in Rural Counties

Random sample of states	Total counties in state	Number of extremely rural counties (density < 25)	Number of extremely rural counties that received $0 funding	Minimum per capita funding in rural counties	Maximum per capita funding in rural counties
Arizona	15	11	0	$7.00	$64.77
Arkansas	75	31	1	.02	56.16
California	58	15	0	.73	94.08
Colorado	63	48	0	.16	68.28
Georgia	159	29	1	1.71	110.21
Idaho	44	31	1	.18	57.78
Illinois	102	12	1	.35	11.43
Iowa	99	40	0	.98	35.85
Michigan	83	15	0	5.63	43.93
Missouri	115	49	1	.03	50.40
Nebraska	93	75	1	.30	274.70
New Mexico	33	27	1	3.00	285.60
Utah	29	23	1	1.55	23.46
Wisconsin	72	16	0	2.87	120.68
Wyoming	23	22	0	.32	29.99

How the E-rate works

One of the primary goals of the E-rate was to help rural America gain access to advanced education and healthcare services.[2] The mechanism for doing this is a set of price discounts intended to make the services (and needed equipment) more affordable. The individual school or library only pays a portion of the actual price, while the rest is paid from a government fund. The program offers discounts that range from 20 to 90 percent, depending on the school or library and its location. Discounts can be applied to telecom services (such as high-speed lines like T-1 lines), to Internet access (but not content), and to internal connections (inside wiring and the creation of LANs/WANs).

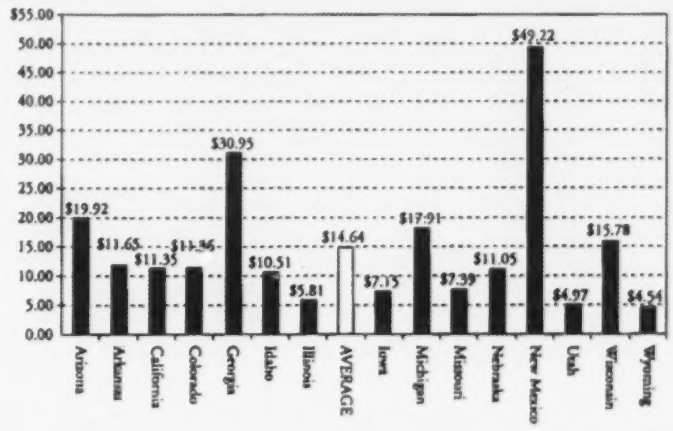
The process is straightforward. Schools and libraries put together technology plans, receive bids on services, and then are awarded discounts based on economic need, rural location, and the total amount of funds to be distributed.

Affordability is a key issue for two reasons. First, these advanced telecom services are made available at the discretion of the provider—so telecom companies offer them only if they are assured of covering their costs. In the end, most companies tilt service offerings to metropolitan areas. Second, the costs of providing advanced services in rural regions are significantly higher than anywhere else. In many cases, costs are so high that individual institutions cannot afford to pay for them. By making the services affordable to the institution and at the same time ensuring that

the provider will cover their costs, the E-rate overcomes a serious hurdle that has plagued rural America for years.

Since the E-rate's inception, two funding cycles have been completed. The third cycle is under way and will end in June 2001. In the first cycle, $1.6 billion in discounts were granted to schools and libraries nationwide, with rural institutions getting $370 million, or 23 percent of that money. In the second cycle, $1.9 billion was granted, with rural schools and libraries receiving $603 million, or 32 percent. In rural regions the overwhelming majority of these dollars—74 percent—went toward internal connections such as LANs, while 23 percent went to dedicated services (such as T1 lines) and 2 percent went to fund actual Internet connections.

Chart 1
Per Capita Funding
Extremely Rural Counties



Where are the dollars going?

To determine whether the most needy and most remote areas of states are getting funding, we looked at data from a subset of 15 states. While these states were chosen at random, they represent a fairly accurate picture of states across the country. Some of the states in the sample are largely rural (Nebraska, Iowa) while others contain major metropolitan areas (California, Illinois). For most of our analysis, comparisons were made on a per capita basis, since broad population differences can make it difficult to compare total funding dollars. The most rural areas of each state in the sample are defined as counties with less than 25 people per square mile. All states in our sample contained at least ten such counties. The dollar figures are based on the first two funding cycles of the program, since the third cycle is not yet complete.

Are remote regions getting funding?

Almost every rural county in each state in our sample received some amount of E-rate funding (Table 1). Since funding must be requested by the institution, the general awareness of the program appears quite high. In fact, access to funding doesn't appear to be affected much at all by the absolute number of residents that would be served, since many counties with very few residents received federal dollars. For example, Kiowa and Jackson counties in Colorado each have less than 2,000 residents, and Logan and Thomas counties in Nebraska each have less than 1,000 residents. All four of these counties received funding in both cycles.

The actual funds that each rural county received on a per capita basis varied greatly from state to state. In some counties the per capita amounts exceeded $200, while in many other counties the funding per capita was less than a dollar. This result is expected because it reflects both the number of rural schools/libraries in a county as well as those institutions' current state of technology. If a county only has a single new elementary school, for example, that county's need for funding will be much less than another county containing two older high schools with outdated equipment.

Are funds spread evenly across states?

Not surprisingly, there is less variation in per capita funding across states than within them. Still, there are some interesting differences across states. Funding in rural portions of Arizona, Georgia, and particularly New Mexico is significantly higher than the per capita average for all rural regions, while funding for rural counties in Wyoming, Illinois, and Utah is significantly lower than the per capita average.

The reasons for these differences are not obvious. The kinds of county-to-county differences shown in Table 1 might reflect numbers of schools/libraries in a specific county, but those differences tend to even out when statewide data are compared.

More likely, the state-to-state variations reflect three factors. First, the existing educational infrastructure—buildings, inside wiring—may differ in average age and average quality from state to state. Second, the local geography and topography can play a major role in the cost of deploying many telecom services, and so the price of the service and the funding will vary. Third, school districts in one state may have been more aggressive in pursuing these federal funds than districts in other states.

The third factor is perhaps the most important, because it is a situation that can be addressed by individual communities and stakeholders. For example, per capita funding in rural parts of New Mexico is ten times greater than in rural parts of Utah (Chart 1). Geographically and topologically,

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New Mexico and Utah are similar, which eliminates the second explanation above. And while there may be differences in existing infrastructure between the two states, it's unlikely that the schools in Utah are ten times more modern or have higher quality equipment than those in New Mexico. Quite possibly, much of the difference in funding between the two states simply reflects the aggressiveness of New Mexico schools and libraries in pursuing federal dollars.

Rural vs. nonrural funding

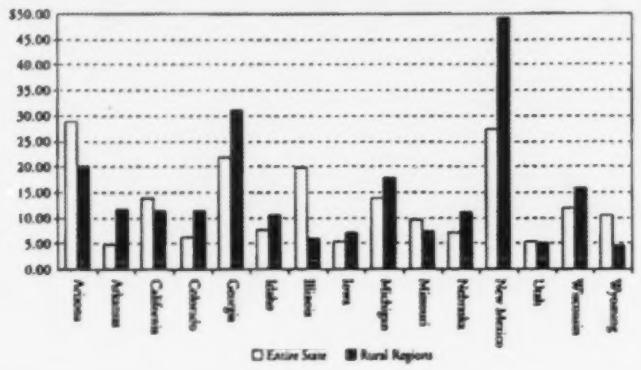
Although the E-rate is not limited to schools and libraries in rural areas, the FCC has consistently emphasized that rural America is a key target of the funding program. In 1997, the Commission stated that greater discounts should be provided to rural areas to "ensure that they have affordable access to supported services."[3] The Commission also recently stated that rural regions were "particularly vulnerable" to not having access to advanced services if deployment was left to market forces alone. For these reasons, we would expect the per capita funding to be higher in rural regions than for the state as a whole.

But our sample of 15 states revealed just the opposite in some places. In six states, per capita funding in rural regions was actually *below* the per capita funding level for the entire state (Chart 2). In fact, in Wyoming and Illinois rural funding was less than half the statewide average. Rural areas in these two states also posted a per capita average that was well below the national average for rural areas.

These results raise questions about whether all of the E-rate's rural goals are being met. As the FCC pointed out, rural areas are in danger of being passed over when advanced telecom services are deployed, and many rural areas need help in making these services affordable. But the funding levels in many of the states in our sample could have been much higher.

Funding levels appear to be a direct result of efforts on the part of rural stakeholders themselves. Individual schools, libraries, and school districts in rural areas can affect the amount of dollars they receive based on the technology plans they submit to the FCC. The good news is that any area seeking to increase its funding levels has the power to do so.

Chart 2
Per Capita Funding
Rural Regions vs. Entire State



Conclusion

Despite mixed results, at this point the E-rate must be considered a success for rural America. Millions of dollars in discounts have flowed to remote areas, and advanced services are now available in small communities that might otherwise never have seen them. It is true that some areas could do better, and when the third wave of funding is completed in June we may find that some of the disparities between regions have decreased. But even if disparities remain, that should not detract from what the E-rate has already achieved: a means of helping much of rural America keep pace with the rest of the country as it participates in the Information Economy of the 21st century.

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[1] The E-rate program supports both rural healthcare and education. Because the overwhelming majority of E-rate dollars flow to projects designed to enhance educational services, this article focuses on the funding of educational projects.

[2] Actually, all schools and libraries are eligible for funding, not just those schools and libraries located in rural regions. However, the program is designed with a specific focus on rural schools and libraries, and these rural institutions receive the largest discounts allowed.

[3] p. 227, FCC's Universal Service Order, May 7, 1997.

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